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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/732,942	12/11/2003	Rita L. Faunce	211552-00050	7274

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PATENT ADMINISTRATOR
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EXAMINER	
TIBBITS, PIA FLORENCE	

ART UNIT	PAPER NUMBER
2838	

DATE MAILED: 09/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/732,942	FAUNCE ET AL.	
	Examiner	Art Unit	
	Pia F. Tibbits	2838	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 May 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *11 December 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This Office action is in answer to the amendment filed 5/4/2006. Claims 1-9 are pending.

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: terminals 1, 5, 8. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement-drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the examiner does not accept the changes, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the **indicator responsive to said first charge indication signal for providing an indication when said lithium ion battery is at near full state-of-charge** must be shown or the feature(s) canceled from the claim(s). No new matter should be entered. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement-drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the examiner does not accept the changes, the applicant will be

notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification: for example, a) "indictor" on page 5 should be replaced by ---indicator---, b) the specification on page 4 describes a "transitional" state of charge, and a "nearly" fully charged, which seem to mean the same thing.

4. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter: "between said near charge state and said fully charged state". See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 1-9 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The recitation in claim 1 "generating a first charge indication signal when said is less than or equal to said first predetermined value, said first predetermined value representing a near full state-of-charge of said lithium ion battery; and an **indicator responsive to said first charge indication signal for providing an indication when said lithium ion battery is at near full state-of-charge**" contradicts the recitation in claim 1 describing "a sensing circuit for sensing when the charging current to said lithium battery is less than a

first predetermined value, **independent of said charging state and voltage of said lithium ion battery**", and contradicts the drawings which show NO INPUT/FEEDBACK from the lithium ion battery. To continue prosecution it was assumed that a charging current conveyed to a lithium battery is controlled by measuring a voltage drop across a resistor R10.

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 7 and 9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 7 recites "between said near charge state and said fully charged state" while the specification describes on page 4 a transitional state-of-charge, and a nearly full state-of-charge. Applicant is reminded to use consistent language throughout the disclosure in order to facilitate finding support for the recited limitations, as well as to provide proper antecedence for all claimed limitations. To continue prosecution it was assumed that indication of the relative charges of the battery are provided.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Ostergaard et al.** [5994878] in view of **Schousek et al.** [6222370].

Ostergaard discloses in figures 1-13 controlling charging of a lithium ion battery based upon a measurement of charging current by measuring a voltage drop across a resistor R74 [see column 7, lines 43-45].

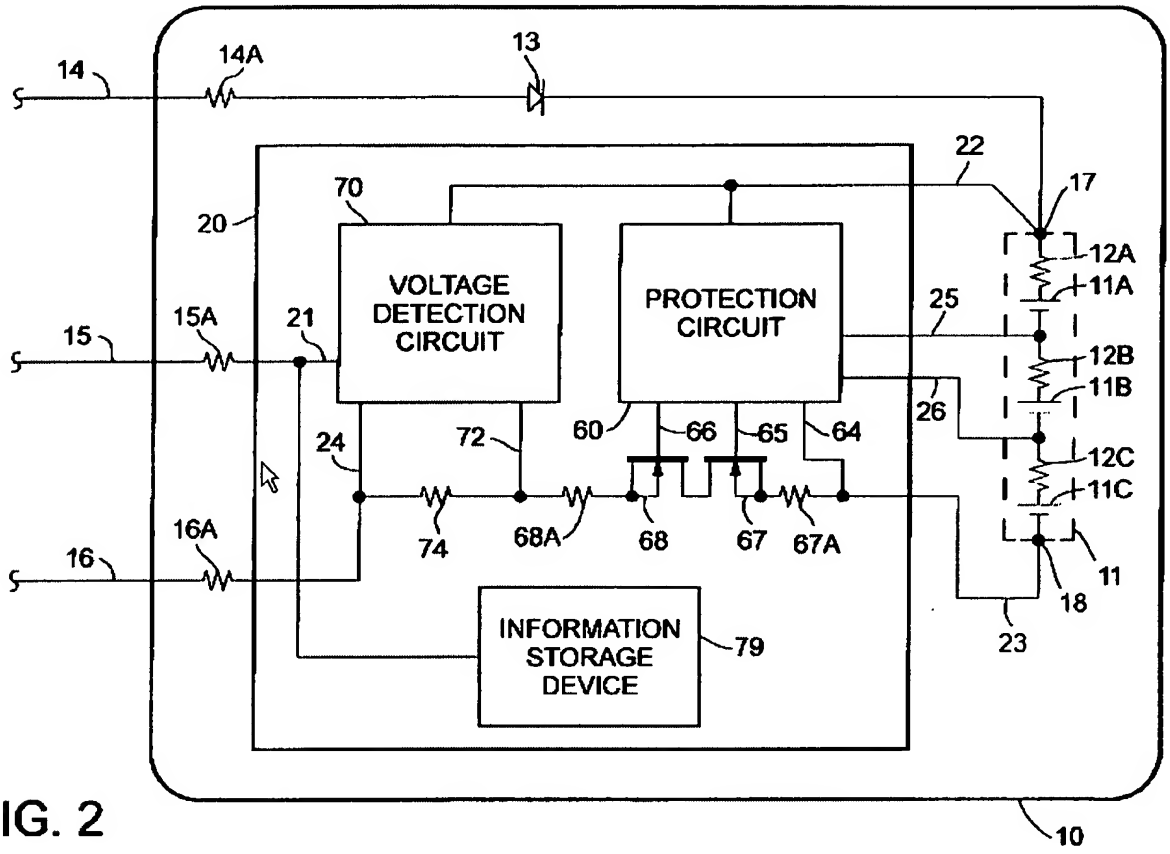


FIG. 2

(19) Circuit 70 monitors the charging/discharging current by measuring the voltage drop across sense resistor 74 via lines 72 and 24. The protection

Ostergaard does not disclose an indicator responsive to said first charge indication signal for providing an indication when said lithium ion battery is at near full state-of-charge.

Schousek discloses in figures 1-11 a monitor 10 that has 5 light emitting diodes (LEDs) 20 which are used to display the nominal voltage of the source being monitored, as well as the relative charge on the source as compared to a "full" charge from a nominal source of the same type [see column 5, lines 27-31].

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the

invention was made to modify Ostergaard's apparatus and include 5 light emitting diodes (LEDs) 20, as disclosed by Schousek, in order to display the nominal voltage of the source being monitored, as well as the relative charge on the source as compared to a "full" charge from a nominal source of the same type.

As to the use of a first red LED, second green LED, etc., absent any criticality, is only considered to be the use of "optimum" or "preferred" material that a person having ordinary skill in the art at the time the invention was made using routine experimentation would have found obvious to provide for the LED's disclosed by Schousek in order to display the nominal voltage of the source being monitored, as well as the relative charge on the source as compared to a "full" charge from a nominal source of the same type since the courts held to be a matter of obvious design choice and within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use of the invention. See ***In re Leshin***, 125 USPQ 416. ***In re Aller***, 105 USPQ 233 (CCPA 1955), ***In re Boesch***, 617 F. 2d 272, 205 USPQ 215 (CCPA 1980).

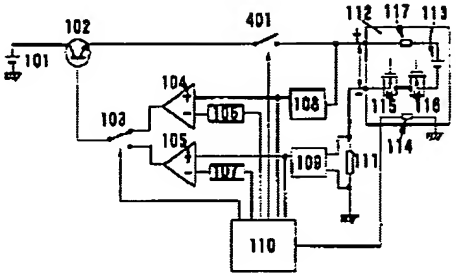
Response to Arguments

11. Applicant's arguments with respect to the claims have been considered but are moot in view of the new grounds of rejection.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art cited in PTO-892 and not mentioned above disclose related apparatus:

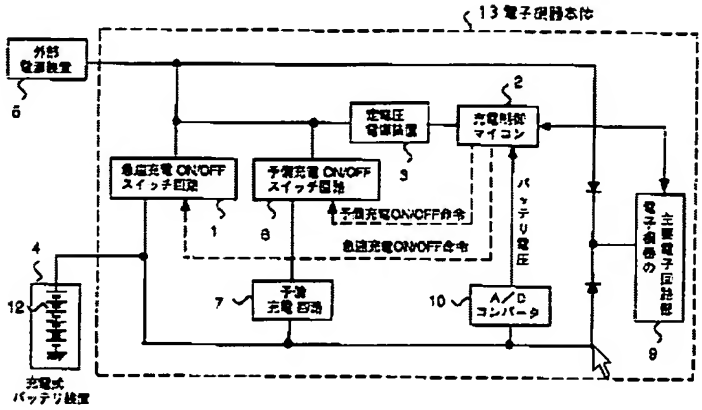
JP-2002142380 discloses



101 電源 (Vcc)
102 出力ドライブ回路
103 制御切替回路
104 電圧制御OPアンプ
105 電流制御OPアンプ
106 電圧制御基準電圧
107 電流制御基準電圧
108 充電電圧検出回路
109 充電電流検出回路
110 制御ロジック回路
111 電流検出抵抗
112 リチウムイオン電池パック
113 リチウムイオン電池
114 サーミスタ
115 充電用FET
116 放電用FET
117 電池内部抵抗
401 充電スイッチ

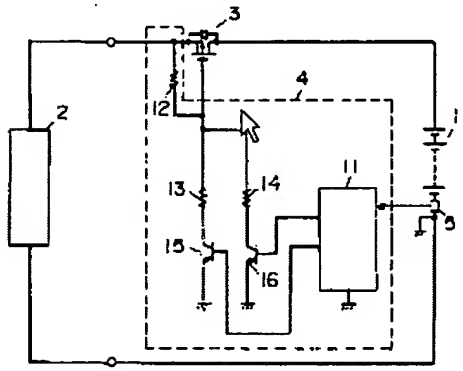
a power supply 101 and an output drive circuit 102 supply a lithium-ion battery 113 to be charged with direct-current power with the output thereof being adjusted. A constant-current adjustment circuit that adjusts the direct-current power to a specified constant current is connected between the positive terminal side of the lithium-ion battery pack 112 and the output drive circuit 102, and a constant-voltage adjustment circuit that adjusts the direct-current power to a prescribed constant voltage is connected between the negative terminal side of the lithium-ion battery pack 112 and the output drive circuit 102. A control switch circuit 103 switches between these connections. A charging switch 401 is turned off when the electromotive force of the lithium-ion battery 113 is checked during a charging period. A control logic circuit controls switching between constant-voltage control and constant- current control, switching of the charging switch 401, and control values for constant voltage and constant current.

JP-08140281 discloses



a charging control microcomputer 2 starts the charging, and turns off a quick charging ON/OFF switch circuit 1 so as to perform preliminary charging, and turns on a preliminary charging ON/OFF switch circuit 6. And, a charging control microcomputer 2 reads the output voltage of a charging battery device 4 through an AD converter 10, and if t is not less than the voltage with which the charging control microcomputer 2 can operate, the charging control microcomputer 2 turns off the preliminary charging ON/OFF switch circuit 6 and turns on the quick charging ON/OFF switch circuit 1 so as to perform quick charging until the output voltage of the chargeable battery device 4 becomes stable. Hereby, the chargeable battery device 4 overdischarged can be activated, and it can be quickly charged, with output increased.

JP-11164489 discloses



a charging controller is provided with a lithium battery 1, a charge power source 2 for charging the secondary battery 1, a charge switching FET 3 formed at a charging passage for charging the secondary battery 1 from the charge power source 2, and a charging control means 4 for controlling the charging switching FET 3. By controlling the voltage between the gate and source of the charging switching FET 3 through a charge control means 4 so that a charging current value becomes a prescribed value, quick charging and trickle current charging for the secondary battery 1 can be conducted with a single charging switching FET 3, and current control limiting resistance can be eliminated. Thus a charging controller built in secondary battery pack can be provided which is able to attain size reduction and trickle current charging at a low cost.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Pia Tibbits whose telephone number is 571-272-2086. If unavailable, contact the Supervisory Patent Examiner Karl Easthom whose telephone number is 571-272-1989. The Technology Center Fax number is 571-273-8300.

14. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PFT

September 12, 2006

Pia Tibbits

Primary Patent Examiner